

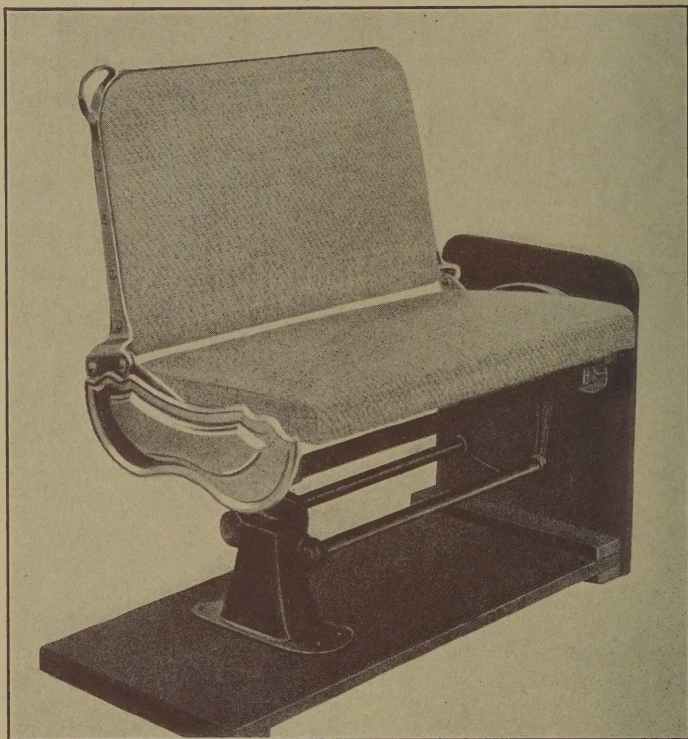
BRILL MAGAZINE

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Calle Pedro Mendoza
Buenos Aires, Argentina.

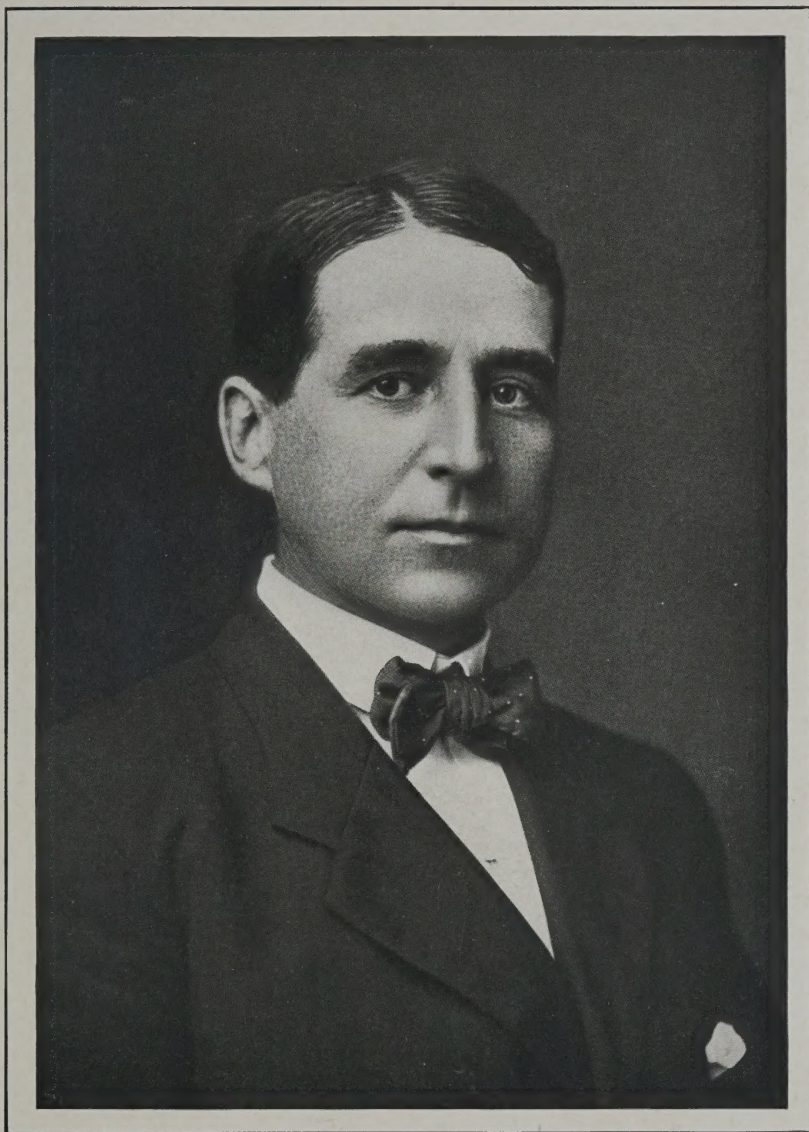
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BRILL "WINNER" SEAT

This seat has a one-piece pressed steel pedestal and pressed steel aisle and wall plates. It is the lightest seat made, and the method of constructing the pedestal and use of angle iron crossings make it the strongest seat on the market. The seat is upholstered in woven cane of Brill manufacture, or in plush, leather or imitation leather. Backs are made any height, plain or three-part.

THE J. G. BRILL COMPANY
PHILADELPHIA - - - PENNSYLVANIA



Arthur W. Gaddy



PRESIDENT, AMERICAN ELECTRIC RAILWAY ASSOCIATION
PRESIDENT, INDIANA UNION TRACTION COMPANY

BRILL MAGAZINE

Vol. V

JANUARY, 1911

No. 1

ARTHUR W. BRADY

[WITH PORTRAIT INSERT]

A RTHUR W. BRADY, president of the Indiana Union Traction Company and of the American Street Railway Association, was born at Muncie, Ind., in 1865. He was educated in the Muncie public schools, at Upson Seminary, New Preston, Conn., at Yale University, and was graduated from the law department of the University of Michigan in the class of 1889. He then engaged in the practice of law at Muncie, of which city he was mayor from 1891 to 1894. While at Muncie he was counsel of the Citizens' Street Railway Company, afterwards a part of the Union Traction Company of Indiana, and the Muncie, Hartford & Fort Wayne Railway Company, which built the interurban line from Muncie to Bluffton. In 1902 he became director, secretary and counsel of the Indianapolis Northern Traction Company, which built the interurban line from Indianapolis to Kokomo, Peru and Logansport, now a part of the Indiana Union Traction Company's system. In 1903, the Indiana Union Traction Company was organized, and he became vice-president. In 1904 he was elected president. Since 1904 his residence has been in Anderson, Ind., where the general offices of the company are located. His first official connection with the American Street Railway Association was in 1906, when he became third vice-president. In 1907 he was elected second vice-president; in 1909, first vice-president; and in 1910, at the Atlantic City convention, he was elected president.

CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE

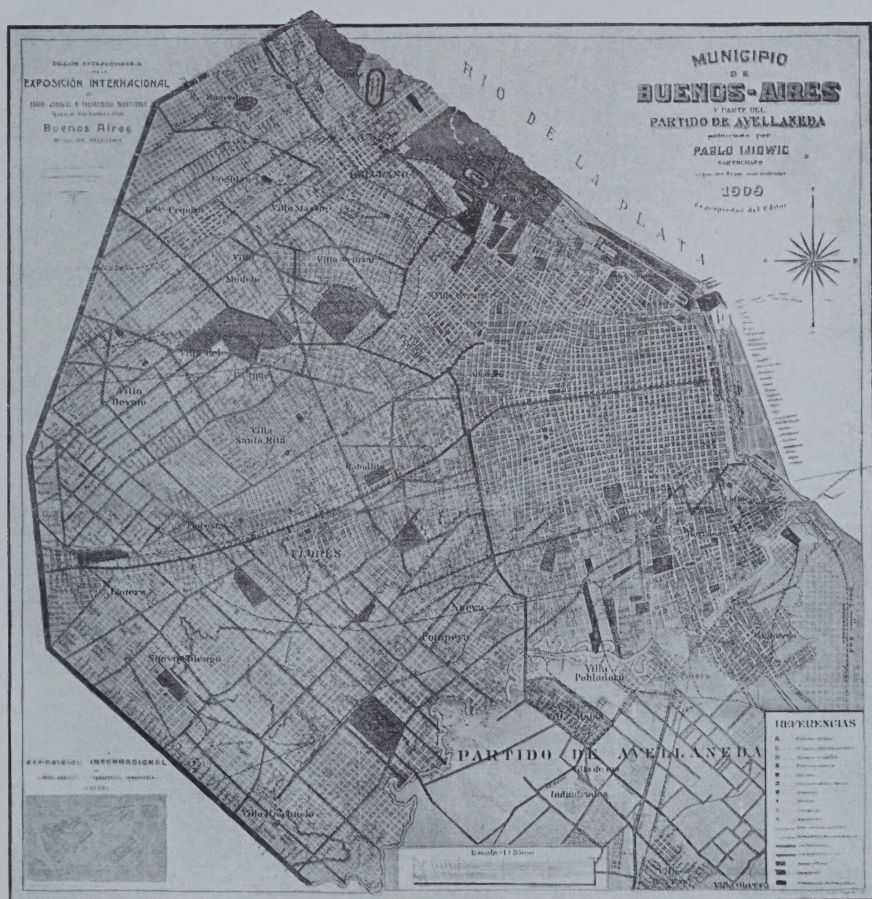
BUENOS AIRES, ARGENTINA*

BUENOS AIRES, the capital of Argentina, is situated on the eastern coast on the La Plate River. In area and population the city ranks among the largest capitals and seaports of the world, extending 11 miles north and south, $15\frac{1}{2}$ miles east and west, and having a circumference of 38 miles. Owing to the shallow and shifting character of the channel of the La Plate River, it was necessary to construct an elaborate and expensive system of harbors, so that Buenos Aires is a self-created rather than a natural seaport. The climate is temperate, moist and equable, and the seasons alternate reversely with those of the north temperate zone, spring commencing in September and autumn in March.

The city is laid out in chess-board fashion, the streets intersecting at right angles, and a splendid system of boulevards radiating from the center of the city and extending through the surrounding suburbs to the municipal limits. The business section is located in the northeastern part of the city, and the finer residential district along the Avenida de Mayo and its intersecting streets and extending into the numerous and rapidly-growing suburbs. The Avenida de Mayo is one of the finest and most celebrated avenues in the world, extending for $1\frac{1}{2}$ miles and bordered by a succession of magnificent public buildings, offices, private residences and cafés.

Several separate companies give Buenos Aires excellent tramway service. From January 1st to September 30th, 1909, these lines carried over 205,000,000 passengers. This, compared with 185,500,000 carried during the same period of the preceding year, gives some idea of the rapid growth of the

* The twenty-fifth article of this series.



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. Buenos Aires has doubled its population in the last decade and has now 1,250,000. The dark lines in the map indicate avenues. The tramway systems are not shown. Several separate companies provide excellent transportation service

city. The Anglo-Argentine Company carried 143,000,000 passengers, running 21,850 car miles. This company contemplates the construction of a system of subways.

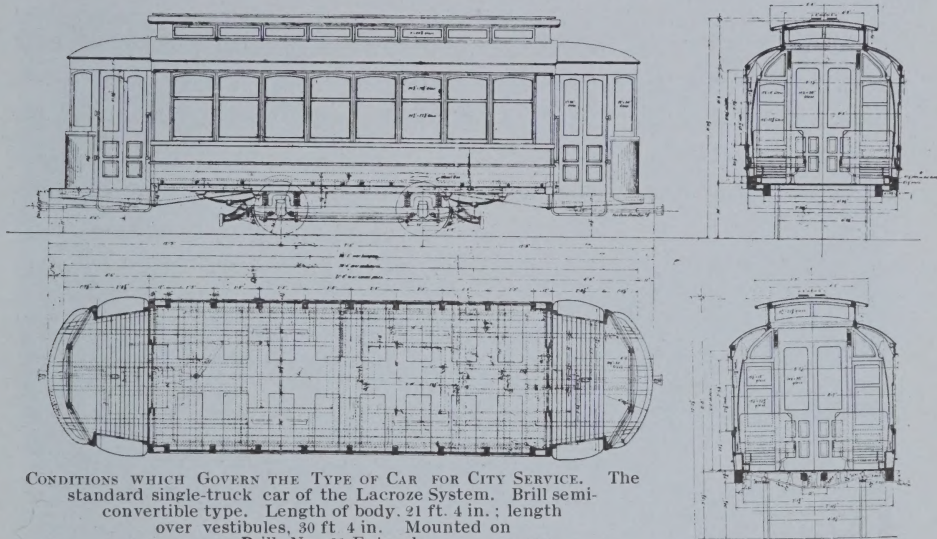
The Capital Tramways Company and the Buenos Aires and Bel Grano Company have a number of Brill cars and the Buenos Aires Port & City Tramways are now operating Brill No. 27-GE trucks under a number of their cars. The Cia de Tramways Electricos de Sud will shortly receive a shipment of Brill trucks of the No. 27-GE2 type.

The Lacroze Tramways Company of Buenos Aires have thirty-seven 30-ft. 8-in. Brill semi-convertible cars and two hundred and twenty-two 21-ft. 4-in. cars of the same type. The smaller cars, for city service, are mounted on Brill No. 21-E trucks, and the larger cars, operating on both city and suburban lines, with Brill No. 27-E1 trucks. The temperate and equable climate renders the semi-convertible type of car most suitable to the requirements of the service.



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. Calle Corriente, traversed by the lines of the Buenos Aires Lacroze Tramways

Both types of cars are handsomely finished in mahogany and furnished with the Brill "Winner" type of seats, upholstered in cane. These seats are large and comfortable, and have arm rests on the window sills, as the sills are unusually low in this type of car. The windows of the larger cars are of the twin arched-top type, with opalescent glass in the upper and in the ventilator sashes. This opalescent glass subdues the light with pleasant effect and makes it unnecessary to draw the

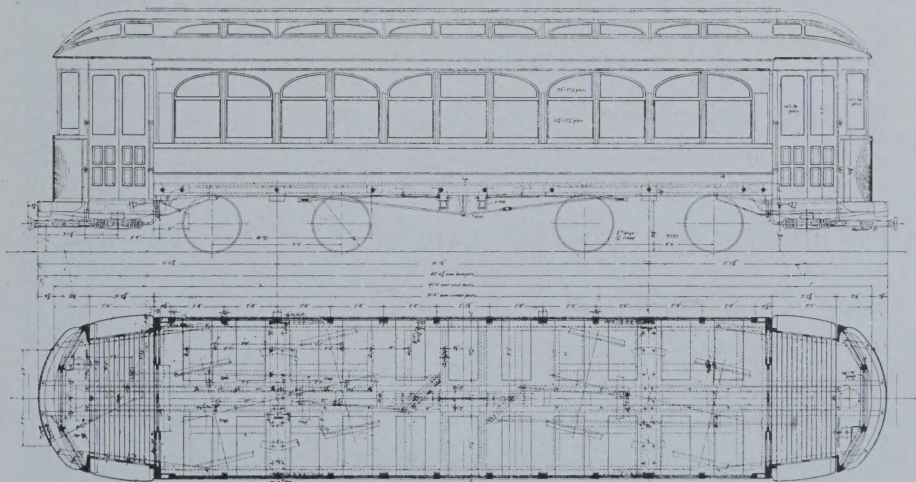


CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. The standard single-truck car of the Lacroze System. Brill semi-convertible type. Length of body, 21 ft. 4 in.; length over vestibules, 30 ft. 4 in. Mounted on Brill No. 21-E truck

The lower cross-section relates to the double-truck car

shades during the larger part of the day.

The ceilings are full empire. During warm weather, the windows are raised in roof pockets, leaving the window spaces clear of sashes and converting the car into practically an open summer car, admirably adapted to the local climatic conditions. The



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. The standard double-truck car of the Lacroze System. Brill semi-convertible type. Length of body, 31 ft.; length over vestibules, 41 ft. Mounted on Brill No. 27-E trucks



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. Procession in connection with religious ceremonies at the opening of the Argentina Centenary Exposition. Dr. José Figueroa Alcorta, the former President of Argentina, is indicated by the arrow. Dr. Alcorta was succeeded in October, 1910, by Dr. Roque Sáenz Peña. The buildings face the Plaza de Mayo

Brill No. 27-E1 trucks under these cars are suitable for high speeds permitted on the suburban portions of the system.

The first section of the electric lines was laid in 1897, and since that time the municipality found it necessary to construct a vast system of diagonal avenues and widen the streets, on account of the rapidly increasing congestion.

Of the various tramway systems of Buenos Aires, the Lacroze Tramway Company is one of the most interesting, as it is the only native Argentine tramway in the city and the first to have a high-speed interurban service, on the American plan, with cars equipped for a maximum speed of 50 miles per hour and its own private right of way. Mr. Federico Lacroze, one of the pioneers of tramway traction in Buenos Aires, formed the Tramway Rural in 1884. The first line which he built ran from the Plaza de Mayo to the Plaza 11 de Setiembre, which line he sold later to the Anglo-Argentine Company and which was the beginning of the extensive system now operated

by that company. Mr. Lacroze, with characteristic activity, extended his system into the system of tramways until recently operating under the name of the "Rural Tramways," and furthermore, extended his lines into the country, at a time when other companies failed to realize the importance of possessing adequate suburban communication.

Owing to the rapid growth of the undertaking, it finally became necessary to form two different systems, viz., The City Tramway Lines, now known as the "Buenos Aires Lacroze Tramways," and a steam railway line, extending from Chacarita station in Buenos Aires to Salto and Zarate, the total length being 137 miles. This line was known as the "Tramway Rural á Vapor," but was afterward organized into a new company called "Ferro Carril Central de Buenos Aires Limitada." A point of interest in connection with the original



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. Entrance to the Argentina Centenary Exposition

franchise is that the same was granted to the concessionaire under the obligation of the exclusive use of horse traction, the reason given by the authorities being that it was necessary to develop the national industry of the country, which at that time depended almost entirely upon horse breeding.



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. The exhibit of the J. G. Brill Company, in the transportation section of the Exposition, included the Brill semi-convertible car mounted on Brill No. 27-E trucks, shown in the engraving, and a shorter car of same type mounted on Brill single truck No. 21-E. Awarded Grand Prix

Under the old concession the original tramway was gradually extended for a distance of about 100 miles into the country, and holds the record for long distance tramway service by horse traction and having been the only horse tramway to run a sleeping car over its lines. This car was designed and built by The J. G. Brill Company. At a later date the authorities recognized that it was necessary to permit the use

of mechanical traction in order to obtain efficient service, and for this purpose steam locomotives were employed.

The development of the business of the Tramway Rural in the hands of Federico Lacroze became, at his death, still more important in those of his energetic sons. In 1905 they



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE. Dining car, first-class passenger car, second-class passenger car and combination baggage and mail car exhibited by the Wason Manufacturing Company. Mounted on Brill No. 27-E3 Trucks. Awarded Grand Prix

entered into a contract with J. G. White & Co. of London for the reconstruction and electrification of the old city lines, under the name of the "Buenos Aires Lacroze Tramways". Being laid in the new portion of the city, the streets were wide enough to admit of a double track.

In March, 1906, the work was begun and before the end of that year the new power-house, with a capacity of 2,250 kilo-

watts, was in running order, an achievement which, in consideration of the labor troubles and port congestion at that time, was phenomenal. On the 10th of March, 1907, part of the lines were formally opened to public traffic, and since that time traffic receipts have been steadily increasing. The original line consisted of some 24 miles of track owned by the company and six miles held jointly with other companies and on lease.

The J. G. Brill Company has furnished all the cars and trucks to the city and steam railways of the Lacroze system since the beginning of its history, and the adoption of the Brill semi-convertible type has given great satisfaction to the patrons of the lines.

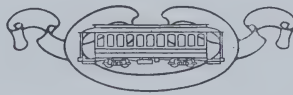
Brill equipment is not, however, confined to the electric roads, for nearly every railway in that section of the country uses Brill trucks more or less, and the Ferro Carril Central de Buenos Aires has thirty passenger cars and trucks, besides over 200 cattle, gondola, baggage cars, etc., all built by The J. G. Brill Company.

The Wason Manufacturing Company has also furnished a large number of cars for the steam lines of Argentina, and has recently built a train of four cars for the Ferro Carril Central de Buenos Aires, the same being exhibited at the Argentine Centenary Exposition held at Buenos Aires during the past year and mounted on Brill No. 27-E3 trucks.

The train consisted of a dining car, a first-class passenger car, a second-class passenger car and a combination baggage and mail car. The exhibit was one of the most attractive in the transportation section of the Exposition and occupied an area of 1900 square feet. In addition, two new cars for the Lacroze system were shown, one a 30-ft. 8-in. vestibuled Brill semi-convertible car mounted on Brill No. 27-E1 trucks, and the other a 21-ft. 4¼-in. vestibuled Brill semi-convertible car mounted on Brill No. 21-E truck. The Grand Prix was

awarded to The J. G. Brill Company and the Wason Manufacturing Company for superiority in electric and steam car and truck design and construction.

The Exposition was held to celebrate the 100th anniversary of the birth of the Republic. Its marvelous growth, especially in its pastoral industries and its railroads, which center at Buenos Aires, was splendidly shown in the exhibits and attracted people from all quarters of the globe. It has opened the eyes of the nations to the phenomenal development of the country within a short period. From 1880 to 1884 the annual imports amounted to \$67,500,000 and the exports to \$61,000,000. In 1909 the imports amounted to \$302,750,000 and the exports \$400,000,000. The first railway was built in 1854, and to-day the mileage of steam railways is 16,950, and 7,400 additional are under construction. The number of passengers carried in 1909 on steam roads approximated 50,000,000, with 32,000,000 tons of freight.



INTERESTING INTERURBAN CARS FOR THE CHICAGO & JOLIET RAILWAY

BRILL PLAIN ARCH ROOF

ONE of the large companies to adopt the plain arch roof for its cars is the American Railways Company, of Philadelphia, which recently received twelve for one of its systems, the Chicago & Joliet Electric Railway. Two of these cars were built by the J. G. Brill Company and are for interurban service between Chicago and Joliet, and the balance were built by the G. C. Kuhlman Car Company and are single-truck cars for the city lines in Joliet. The city

cars are similar to those built for the Peoples Railway of Dayton, Ohio, described on page 294 of the October, 1910, issue of the BRILL MAGAZINE. The Chicago & Joliet Electric Railway controls and operates the lines in Joliet, and reaches Chicago through the Chicago & Desplaines Valley road, which it also controls, and through a branch line from Summit to Lyons, where connection is made with the Chicago Railways Company. Dellwood Park, a part of the railway property, was described in the January, 1907, issue of the BRILL MAGAZINE.

The two cars recently received by this company from The J. G. Brill Company are among the first strictly interurban cars to have the plain arch roof. Heretofore the tendency has been to adhere as close to the steam passenger coach as possible, so the Brill roof car, with its increased window space and lighter weight body construction, is almost a radical departure. The result appears to be well worth the change, as the appearance is excellent, and the advantages are increased head room, higher windows, stronger roof construction, lighter in weight, and absolutely waterproof. The Chicago & Joliet cars are equipped with the Vacuum Car Ventilating Company's ventilators, described in the October, 1910, issue of the BRILL MAGAZINE.



INTERESTING INTERURBAN CARS FOR THE CHICAGO & JOLIET RAILWAY. One of the first lots of interurban cars to have the Brill Plain Arch Roof. The smoking compartment occupies the space of five windows. In the engraving the location of the toilet room is obscured by the chipped glass in the lower sash. The cars have all-steel underframes and are mounted on Brill No. 27-M.C.B.2 Trucks

The cars are divided into two sections: a smoking compartment 14 ft. long, seating 20 passengers, and a passenger compartment 22 ft. long, with seats for thirty and a saloon against the partition. The seats are placed transversely, with the exception of four longitudinal corner seats. The upper window sashes are stationary and the lower raise. The plain arch roof enables the windows to be



INTERESTING INTERURBAN CARS FOR THE CHICAGO & JOLIET RAILWAY
The casings of the motor-driven exhaust fan and ducts are shown under the platform hood, and the outlet is seen on the edge of the roof. The vestibules are provided with both doors and gates

about five inches higher than with the monitor type of roof. The lights are placed in two rows directly over the center of the seats, one light to each seat. Basket racks of a neat design are placed over every alternate window. The bronze trim throughout is attractive in design and of substantial character. The underframe is of all-steel construction and consists of 8-in. Z bar side sills, 10-in. channel end sills and 5-in. channel crossings. The ends of the cars are protected with Brill patented angle iron buffers.

The cars are mounted on Brill No. 27-M.C.B.2 trucks. The trucks have a wheel base of 6 ft. 3 in., and 34-in. rolled steel wheels. The bolster centers are spaced 24 ft. apart and



INTERESTING INTERURBAN CARS FOR THE CHICAGO & JOLIET RAILWAY. The photograph convincingly proves that the omission of deck sashes does not lessen the brightness and attractiveness of the interior. The smoking compartment seats 20 passengers and the other compartment 30

the trucks are arranged to permit of negotiating curves of 35 ft. radius. The cars are equipped with air couplings for train service, these couplings being attached to the draw head.

Length of body	36 ft.	From step to platform . . .	15 in.
Length over platforms . . .	46 ft.	From platform to car floor .	7¼ in.
Length of platforms	5 ft.	Seating capacity	50
Length of smoking compart.	14 ft.	Type of trucks . . . 27-M.C.B.2—4-65 h.p.	
Centers of side posts	2 ft. 8 in.	Type of motors	GE 210
Width over sills	8 ft. 7 in.	Wt. of car less elec. equip.	25,294 lbs.
Width over posts	8 ft. 7 in.	Wt. of electrical equip. . .	2,556 lbs.
Extreme width	8 ft. 10¼ in.	Wt. of air brake equip. . .	1,800 lbs.
From track to sills	2 ft. 8⅞ in.	Wt. of trucks	18,000 lbs.
From sills over trolley boards	9 ft. ½ in.	Wt. of motors	13,200 lbs.
From floor to headlining . .	7 ft. 7⅞ in.		
From track to step	17⅞ in.	Total weight	60,850 lbs.

OPEN AND CLOSED CARS FOR ATHENS,
GEORGIA

BRILL No. 39-E TRUCKS

SINGLE-MOTOR trucks are being adopted in many cities as standard, and under all but exceptional conditions a two-motor equipment is sufficient for a city car. One of the latest lines to adopt this type of truck is the Athens Electric Railway Company, which recently received from the American Car Company six cars mounted on Brill No. 39-E trucks. The cars were of two types: Three 34-ft. $\frac{3}{8}$ -in. 12-bench open "Narragansett" type and three semi-convertible. The "Narragansett" open cars have a seating capacity of 60 and, besides being a necessary addition for regular traffic, will aid much in the heavy excursion service during the summer months. The side sills are 8 x 3 x $\frac{1}{2}$ -in. Z bars. In constructing the car the lower angle of the Z bar extends outward, the posts and the body construction resting on the upper angle. The extending part of the sill is fitted with step treads between each pair of posts, making an 8-inch step down from



OPEN AND CLOSED CARS FOR ATHENS, GEORGIA. Stephenson semi-convertible type of car with 25-ft. 4-in. body. Mounted on Brill No. 39-E Trucks



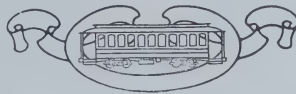
OPEN AND CLOSED CARS FOR ATHENS, GEORGIA. The Stephenson semi-convertible window system consists of a lower sash which drops into a wall pocket and an upper sash which raises into a recess behind the letter panel

the floor of the car and therefore reducing the height of the running board. This result is obtained with no addition to the width of the car, as the upper step is inside the outer width of the car body.

The semi-convertible cars are for all-the-year-round service. During the cold months they alone are used, but in the summer the service is augmented by the use of the open and by trail cars. The Stephenson differs from the Brill semi-convertible window system in that, instead of both sashes raising into roof pockets, only the upper sash raises, while the lower drops into wall pockets. The cars have the monitor type roof and straight sides. The vestibules are round end stationary, with Brill automatic doors at entrances at both sides. The underframing is wood, with side sills reinforced with $\frac{3}{8}$ x12-in. steel plates.

The principal dimensions of the closed cars are as follows:

Length of body	25 ft. 4 in.	From step to platform . .	13 $\frac{9}{16}$ in.
Length over platforms . .	34 ft. 9 in.	From platform to car floor .	9 $\frac{1}{2}$ in.
Length of platforms	4 ft. 8 in.	Seating capacity	32
Centers of side posts . . .	2 ft. 8 in.	Type of trucks	39-E
Width over sills	8 ft.	Type of motors	GE 219—2-50 h.p.
Width over posts	8 ft.	Wt. of car less elec. equip. .	14,000 lbs.
Extreme width	8 ft. 6 in.	Wt. of electrical equipment	1,570 lbs.
From track to sills	31 $\frac{3}{10}$ in.	Wt. air brake equipment . .	1,500 lbs.
From sills over trolley board	9 ft. 7 in.	Wt. of trucks	9,600 lbs.
From floor to headlining . .	8 ft. 4 $\frac{3}{8}$ in.	Wt. of motors	5,750 lbs.
From track to step	16 $\frac{1}{2}$ in.	Total weight	32,420 lbs.



BAGGAGE CAR FOR THE WASHINGTON RAILWAY & ELECTRIC COMPANY

POWER CRANE EQUIPMENT

EACH year brings an increase in the number of baggage and express cars placed in service on the different electric railways, and especially is this true of the suburban and interurban lines. This class of service is rapidly becoming a valuable source of income and is undoubtedly destined to become an important branch of railway business.

The car shown was recently delivered to the Washington Railway & Electric Company by The J. G. Brill Company and is used in the transportation of baggage, freight and provisions to the suburban parts of Washington. The roof is of the Brill plain arch type and is supported by seven 4 $\frac{1}{2}$ x $\frac{5}{8}$ -in. steel rafters, forged to the shape of the roof in a solid piece and with a foot by which they are securely bolted



BAGGAGE CAR FOR THE WASHINGTON RAILWAY & ELECTRIC COMPANY. An excellent design of car for general freight service. Single swing doors at diagonally opposite corners and wide sliding doors at the center. Photographed on temporary trucks

to the top plate, and by the usual wooden rafters. In the other two corners, as well as in the upper part of the doors, the window sashes are arranged to lower or raise. On each side of the car is a single sliding door with 5-ft. opening and two windows. The upper part of these doors is fitted with three stationary window sashes. All the side windows and door lights are guarded with wrought-iron bars.

To facilitate the loading and unloading of heavy materials, a compressed air hoist, with swinging crane and pulleys, capable of lifting a weight of 800 pounds, is placed at diagonally opposite ends of the center sliding doors. The crane is built of 4-in. channel steel and inside the channel is placed the air cylinder, which is 4 inches in diameter and has a 30-in. piston.

The interior of the car is sheathed with ash to the roof. The floor has fireproof sections over the motors. The side sills are reinforced with $\frac{5}{8}$ x 7-in. steel plates the full length of the sills. Under-trusses and double-trussed needle beams reinforce the underframe, and throughout the construction is of an extra substantial character. The car is equipped with Brill patented angle iron buffers, Dumpit sanders, and Dedenda gongs. There are single swinging doors at diagon-



BAGGAGE CAR FOR THE WASHINGTON RAILWAY & ELECTRIC COMPANY. Compressed air cranes arranged to swing out at the side doors are a part of the equipment, and their location is indicated by the brackets at the center of the car

ally opposite corners of the car to admit long pieces of material and enable the motorman to get at switches quickly.

A removable partition composed of iron piping is provided at both ends to pile freight against and leave necessary space for the motorman. The car is well lighted from two windows on each side, the triple windows in the sliding doors and from the end windows. At night there is ample illumination from three clusters placed along the center of the roof.

Length of body	35	Weight of car less electrical equipment	14,060 lbs.
Centers of side posts	20 in.	Weight of electrical equipment	1,350 lbs.
Width over sills	8 ft. 2 in.	Weight of air brake equipment	1,500 lbs.
Width over posts	8 ft. 2 in.	Total weight	16,910 lbs.
Extreme width	8 ft. 5½ in.		
From track to sills	2 ft. 7¼ in.		
From sills over trolley boards	8 ft. 8¾ in.		
From floor to center rafters	7 ft. 7 in.		

SEMI-CONVERTIBLE CARS FOR THE CLINTON STREET RAILWAY

SINGLE ENTRANCE PLATFORMS

CLINTON, with a population of about 25,000 and located on the western side of the upper Mississippi River, is one of the most important cities of eastern Iowa. The city lines, consisting of about 14 miles of track and reaching Lyons, a small town just north of Clinton, are operated and owned by the Clinton Street Railway Company. To the south Clinton is connected with Davenport and intermediate towns by the lines of the Iowa & Illinois Railway Company, an interurban line owning and operating about 40 miles of track. The Clinton Street Railway Company owns one and reaches two other parks. Instead of providing large cars, this company uses a single-truck car with closed vestibules and runs them on a close schedule during rush periods, together with trail cars.



SEMI-CONVERTIBLE CARS FOR THE CLINTON STREET RAILWAY. Double-end 30-ft. 8-in. car with 5-ft. single entrance platforms. Mounted on Brill No. 21-E Truck



SEMI-CONVERTIBLE CARS FOR THE CLINTON STREET RAILWAY. A typical single-track semi-convertible car interior, seating 32 passengers. Note the wide aisle obtainable in this type of car

Cars of the type illustrated were recently built by the American Car Company. They are a little wider than the ordinary type city car and have the semi-convertible window system, which, besides obviating the necessity for two types of equipment, adds materially to the interior width of the car. There are eight 36-in. transverse seats on each side of the aisle, which has a width of 28 inches. This gives a seating capacity of 32 in a 20-ft. 8-in. car and allows plenty of aisle room for standing passengers. The exit and entrance are on diagonally opposite corners of the car, which is built for double-end service and single track lines. The opposite side of the vestibules is enclosed with steel sheathing.

The underframing is of wood, the side sills reinforced with 6 x 3½-in steel angles. The ends of the cars are protected by

Brill patent angle buffers, which are fitted with sloping shields. The cars were mounted on Brill No. 21-E Trucks which the company had on hand.

Length of body	20 ft. 8 in.	From step to platform . . .	13 in.
Length over platforms . . .	30 ft. 8 in.	From platform to car floor	6 $\frac{13}{16}$ in.
Length of platforms	5 ft.	Seating capacity	32
Centers of side posts	29 in.	Type of trucks	Brill 21-E
Width over sills	8 ft. 5 $\frac{1}{2}$ in.	Type of motors	GE-52—2-27 h.p.
Width over posts	8 ft. 8 in.	Wt. of car less elec. equip.	13,000 lbs.
Extreme width	9 ft. 1 in.	Wt. electrical equipment . .	4,390 lbs.
From track to sills	27 in.	Wt. of air brake equip. . . .	1,200 lbs.
From sills to trolley boards	9 ft. 0 $\frac{3}{4}$ in.	Wt. of truck	5,400 lbs.
From floor to head lining . .	8 ft. 5 in.	Wt. of motors	3,450 lbs.
From track to step	14 $\frac{13}{16}$ in.	Total weight	27,440 lbs.



PAY-AS-YOU-ENTER CARS FOR COLUMBUS, OHIO

INTERESTING DOOR ARRANGEMENT

COLUMBUS has a population of about 200,000 and is laid out in nearly a square; consequently the street car lines are fairly short. The business district is largely centered in a short section along High Street about four blocks long. There are also a number of large manufacturing plants on the outskirts of the city. To provide rush hour service to meet the congestion caused by these conditions would tax the capacity of any line in a city of corresponding size. In order to best meet these conditions the Columbus Railway & Light Company has adopted as standard the P-A-Y-E type of car illustrated. Seven cars comprise this order, and four more with steel underframes are under construction. The G. C. Kuhlman Car Company designed the special type of steel underframe and side construc-



PAY-AS-YOU-ENTER CARS FOR COLUMBUS, OHIO. The platforms are 7 ft. 6 in. long and arranged for double-end operation. The trolley boards are trussed to bring most of the weight to bear over the body ends. Photographed on temporary trucks

tion of the order now in hand, which will be the subject of an article in an early issue.

The door arrangement is somewhat out of the ordinary. The vestibule doors at the step entrances and exits are of practically a standard P-A-Y-E type. At the center of each entrance side of the platforms there is a post to which the doors are attached and another on the platform which forms a stop for the doors and to which the conductor's railing is connected, the other end being fastened to the bulkhead partition. The entrance doors are single folding and the exit single swing, both having fittings to hold them open automatically. At the other side of the platforms is a single sliding door operated by the motorman. The bulkhead doors are of a rather unusual type. At the left hand side of the car, looking forward, there is a single door which slides into a pocket in the center of the bulkhead. The track is provided with stops to keep the door either open or shut. On the other side there is a double-acting single swing door attached to the corner post. This



PAY-AS-YOU-ENTER CARS FOR COLUMBUS, OHIO. Seating capacity, 35. The rear entrance and exit doors are hinged to the center post and the front exit has a sliding door

swings in past the end of the seat and out against the pocket for the single exit sliding door. The roof is of the monitor deck type, with trussed trolley boards, bringing the principal weight over the bulkheads. The sides are straight and the underframe of wood substantially reinforced. The side sills are plated with $\frac{3}{8} \times 15\frac{1}{2}$ -in. steel plates reinforced on the edge by $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{2}$ -in. angle iron. The windows are of single sash type arranged to drop into covered pockets.

Length of body	31 ft. 6 $\frac{7}{8}$ in.	From sills over trolley boards	9 ft. 5 in.
Length over platforms	46 ft. 6 $\frac{7}{8}$ in.	From floor to headlining	8 ft. 2 $\frac{1}{2}$ in.
Length of platforms	7 ft. 6 in.	From track to step	17 in.
Centers of side posts	33 $\frac{9}{16}$ in.	From step to platform	15 $\frac{3}{4}$ in.
Width over sills	8 ft.	From platform to car floor	8 $\frac{3}{4}$ in.
Width over posts	8 ft.	Seating capacity	35
Extreme width	8 ft. 5 in.	Wt. of car, less trucks, air	
From track to sills	2 ft. 10 in.	and electrical equipment	18,240 lbs.



PAY-AS-YOU-ENTER CARS FOR COLUMBUS, OHIO. At the front left side of the car is a sliding door, and at the right a hinged door. The window sashes drop into wall pockets

A HISTORY OF THE J. G. BRILL COMPANY

JAMES RAWLE

IN the year 1868, and for a number of years before that time, J. G. Brill and his oldest son, G. Martin Brill, were highly esteemed foremen in the car works of Murphy & Allison, who built at that time city railway cars as well as freight cars. With the exception of one plant, that of Billmeyer & Small, at York, the Murphy & Allison was the only car-building establishment in Pennsylvania, and they abandoned the building of horse cars. Actuated by the evident need of a factory for this purpose, the two Brills decided to start in a small way



The brick building at the center of the photograph was built in 1871 and was the first of the former Brill plant at 31st and Chestnut Streets

to supply this need. Their capital was thirteen hundred dollars. They leased a small shop at 31st and Chestnut Streets, working lustily with their own hands—and they were noblemen of mechanics.



The first cars built were for cable operation on an incline railway

Their ingenuity, fair dealing and industriousness appealed to the users of such cars, and they were awarded some important contracts. Within two years they bought the land on 31st Street, south of Chestnut, and built a good brick building. Finding that they had not sufficient working capital, they looked about for a partner, and James Rawle joined them, buying one-third interest in November, 1872. At this time John A. Brill, as a lad, was keeping the books and laying the foundation of his fine skill and ability in the business. The year 1873 was a disastrous year in finance in the United States. The new firm, J. G. Brill & Company, was fortunate in securing orders of considerable amounts for



An early order for Mexico was secured because other car builders would not undertake the construction of the peculiar type wanted. The cars were so satisfactory that many orders resulted

cars for Mexico, Cuba and other countries, and there was never a month in which they did not have some orders upon their books. By careful attention to meeting their payments, they

NOVEMBER, 1884.]

THE STREET RAILWAY JOURNAL

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J. C. BRILL & CO., PHILADELPHIA.

RAILWAY

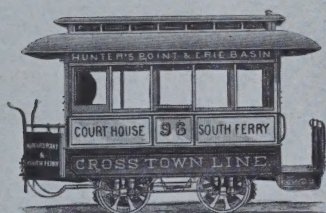
Builders of

— AND —

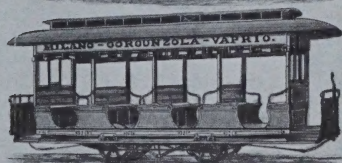
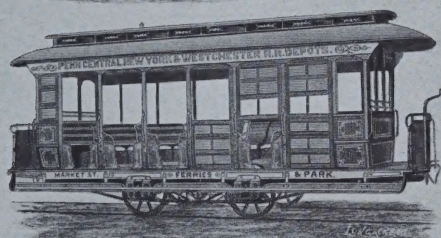
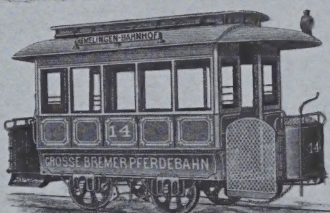
TRAMWAY

CARS

of all kinds.



The
Construction
of which we
have brought
to a high degree
of
Excellence.



GOLD MEDAL

— FOR —

BEST

Tram Car,



Chicago
Exposition of
Railway
Appliances,
1883.



CABLE ADDRESS—BRILL—PHILADELPHIA.

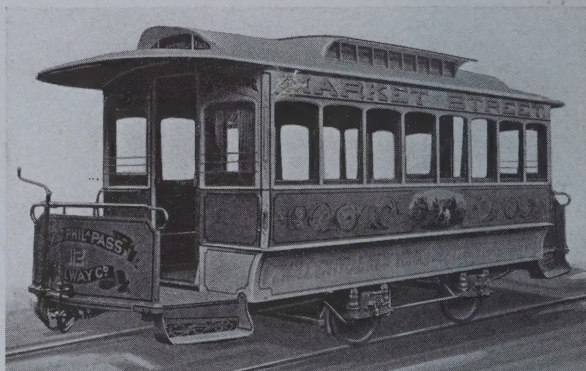
Advertisement in the first issue of the Street Railway Journal, now the Electric Railway Journal

built up a good credit, and during the year 1873 they adopted the Central National Bank as their chief depository, and have continued the same relation ever since.

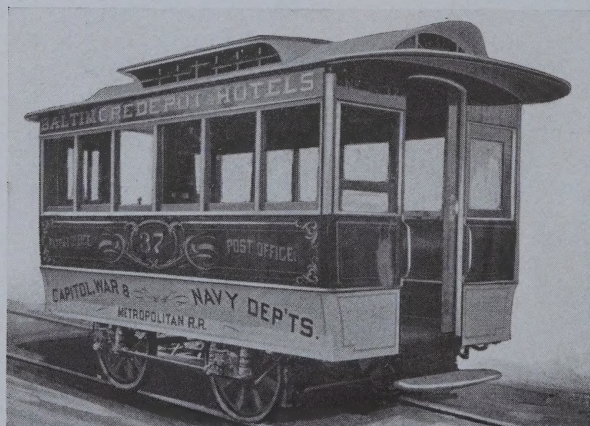
In 1875 they were visited by Mr. Culver, to

whom Coney Island owes its start. Mr. Culver stated that he came to see if the Brills could build him the cars he had decided upon, for no other car builder could. The Brill policy was to do what buyers wanted, and they took the orders, which were added to each year for many years. A Mexican company of wealth came to the firm for peculiar cars which they said no builder near New York would undertake; and the Brills worked out a combination of minimum height, low weight and other details which met the requirements, and many orders

resulted. Then followed many orders for the Coney Island railroads, Brighton Beach, Manhattan, Far Rockaway, Seaside lines, and a very hurried order for peculiar cars, built in sections, for Sidney, Australia.



One of the first lots of cars was built for the Market Street line, Philadelphia. Many of the cars of that period were highly ornamented. The one illustrated had a painting in the center of the convex panel portraying an Indian attack upon a Union Pacific track construction gang



A "bob-tail" car built for the Metropolitan Railroad of Washington in the early seventies

[TO BE CONTINUED]

THE J. G. BRILL COMPANY

Main Office : PHILADELPHIA, U. S. A.

Cable Address : "BRILL," Philadelphia

London Office : 110 Cannon Street, E. C.

Cable Address : "AXLES," London

**American
Car Company**
St. Louis, Mo.

**G. C. Kuhlman
Car Company**
Cleveland, Ohio

John Stephenson Company

Elizabeth, N. J.

**Wason
Manufacturing Company**
Springfield, Mass.

**Danville
Car Company**
Danville, Ill.

COMPAGNIE J. G. BRILL

14 Place de Laborde, Paris

Cable Address : "BOGIBRIL"

AGENCIES

Pacific Coast

Pierson, Roeding & Co.
409 Monadnock Building
San Francisco

Argentine and Uruguay

Federico H. Bagge
Calle San Martin 201
Buenos Aires

Australasia

Noyes Brothers
Melbourne, Sidney,
Dunedin, Brisbane, Perth

Natal, Transvaal and

Orange River Colony

Thomas Barlow & Sons
Durban, Natal

Mexico

International Machinery &
Engineering Co.
Mutual Bldg., Mexico, D.F.

Italy

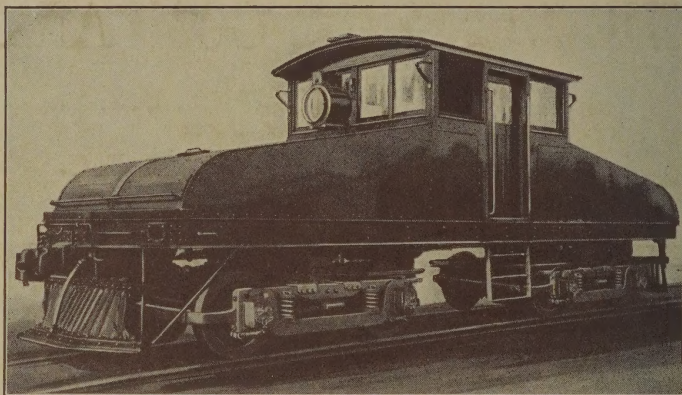
Giovanni Checchetti
Piazza Sicilia, 1
Milan

Belgium and Holland

C. Dubbelman
45 Rue de la Caserne
Brussels

China

Shewan, Tomes & Co.
Hong Kong, Canton
Shanghai



HEAVY ELECTRIC LOCOMOTIVES

The rapidly increasing number of interurban lines connecting with steam roads for the handling of freight traffic is making a considerable demand for locomotives fitted with steam car couplers and powerful enough to switch and draw a train of freight cars. The locomotive shown is of the design adopted by a number of the largest interurban systems, on account of the unobstructed view in every direction which the operator has from the centrally located cab and the ample space provided for loading the car to obtain the necessary traction for heavy trains. It is built on an all-steel frame, the sides and covers at both ends are steel, and the locomotive is fitted with steam car couplers.

THE J. G. BRILL COMPANY
PHILADELPHIA - - - PENNSYLVANIA